UNITED STATES GOVERNMENT **FISH AND WILDLIFE SERVICE**

Memorandum

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TO: San Joaquin Basin Fish Health Information Distribution List
(Please contact Ken Nichols to be included/excluded from this list)

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SUBJECT: Merced River PKD Survey – Spring 2002

During the spring of 2001, the California-Nevada Fish Health Center (FHC) conducted a survey of fish health and physiological parameters in the San Joaquin River and tributaries. Following that survey we were concerned about the high prevalence (90%+) of the myxozoan parasite *Tetracapsula bryosalmonae* observed among naturally produced Merced River Fall Chinook Salmon smolts. *Tetracapsula bryosalmonae* (formerly known as PKX) is the causative agent of Proliferative Kidney Disease (PKD) and has been a concern at Merced River Hatchery for many years (Hedrick, Kent and Smith 1986). The FHC has tracked *T. bryosalmonae* infection in Merced River Chinook smolts since 1996 (reports available through FHC). Due to the high incidence of infection in both hatchery and natural smolts observed in 2001, we surveyed natural origin Merced River Fall Chinook Salmon smolts again in 2002. The results of that survey and a summary of *T. bryosalmonae* work conducted by the FHC are presented here.

Sixty natural origin Merced River Fall Chinook Salmon smolts were collected by rotary screw trap from April 29 to May 3, 2002. During this period, all hatchery origin fish were marked with either adipose fine clip or dye mark. Unmarked (naturally produced) fish were targeted for collection. The trap was located upstream of the HWY 59 bridge near river mile 37 on the Merced River. The trap was operated by Natural Resource Scientists, Inc as part of ongoing juvenile salmonid monitoring on the Merced River. The fish were preserved in Prefer fixative (Anatech, LTD) upon removal from the trap and shipped to the FHC for histopathological processing. Posterior kidney tissue was rated for number of parasites (none, light or heavy) and inflammation associated with parasites (none, slight, extensive).

Of 51 fish examined, 26 (51%) were infected with *T. bryosalmonae*. Light infections were noted in 15 of 51 (29%) and heavy infections were noted in 11 of 51 (22%) of kidney samples. Slight inflammation was observed in 11 of 51 (22%) and extensive inflammation was observed in 3 of 51 (6%) of samples. A summary of *T.*

bryosalmonae work done by the FHC is presented in Table 1. A short discussion on PKD in San Joaquin River salmon smolts can be found in the report (Nichols and Foott 2002b) distributed with this memo. If PKD develops and impairs performance (swimming, salt water entry, disease resistance) during smolt migration, mortality may increase.

Table 1. Prevalence of *Tetracapsula bryosalmonae* among hatchery and natural origin Merced River Chinook Salmon smolts. Fish assayed by histopathological examination of posterior kidney by the CA-NV Fish Health Center.

Year	Month	Origin	N	Prevalence	Reference
1996	May	Hatchery	8	63%	True 1996
1997	April	Hatchery	10	0%	Foott 1997
1998	April	Hatchery	6	0%	Nichols 1999a
1999	April	Hatchery	6	0%	Nichols 1999b
2000	April	Hatchery	45	4%	Nichols, Harmon and Foott 2000
2000	April	Natural	49	2%	Nichols, Foott and Burmester 2000
2001	April	Hatchery	10	20%	Nichols and Foott 2002b
2001	April	Natural	10	90%	Nichols and Foott 2002b
2001	May	Hatchery	34	100%	Nichols, Burmester and Foott 2001
2001	May	Natural	9	100%	Nichols and Foott 2002b
2002	April	Hatchery	201	46%	Nichols and Foott 2002a
2002	April	Natural	51	51%	This memo

Acknowledgements

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